Dual Loyalty of Physicians in the Military and in Civilian Life

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The concept of the dual loyalty physicians may have to both a patient and a third party is important in elucidating the obligations of physicians. The extent to which loyalty may be deflected from a patient to a third party (e.g., an insurance company or a prison commander) is greatly underestimated and has not attracted significant scholarly analysis.

We examined dual loyalty in civilian and military contexts and used the principles of public health ethics to construct a framework for determining the legitimacy of physicians' obligations. We illustrate the application of these principles to problems physicians encounter regarding communicable diseases, elder abuse, and driving fitness. In the complex military context, independent ethics tribunals should be created to adjudicate loyalty conflicts. (*Am J Public Health.* 2008;98:2161–2167. doi:10.2105/AJPH.2007.124644)

DUAL LOYALTY FOR PHYSICIANS in the military has been a topic of considerable debate over many decades. The Stephen Biko case in South Africa and more recent examples of physicians' behavior in the Abu Ghraib and Guantanamo Bay prisons are prime examples that test the role and loyalty of physicians under duress. The consensus has long been that despite the different contexts, the ethical responsibilities of health care professionals to their patients are the same in the military context as in civilian life.[1,2] Living up to such expectations is more challenging when health care decisions can be influenced or directed by the requirements of military or prison commanders and the urgent demands associated with combat, but doctors are urged to rise above these pressures and to honor their ethical responsibilities even if this jeopardizes them personally.[1,2]

Numerous authors have raised important questions about the role of physicians during war. Gross argues that medical ethics during war differ from those in civilian life, with the principle of utility, which justifies war to protect the nation-state, overriding the principles of dignity, autonomy, and protection of life.[3] Rubenstein contests Gross's assertions and affirms the Geneva Conventions and human rights law as guides to physician behavior.[4] Zupan et al. discuss a case in which the US military, for the purpose of extracting information, ignored a prisoner of war's wish to die and forced him to undergo dialysis.[5]

Debates about the issues at stake for physicians in the military extend previous discussions of supererogation and the moral character of physicians.[6] Although most would agree that physicians have moral obligations beyond those incumbent on many other members of society, it is unrealistic to expect that more than a few can emulate the exemplary lives of Johan Sassall or David Hilfiker, as described by Beauchamp and Childress, or adhere to the standards they attribute to some well-known heroes and saints.[6] It is important that the medical profession engage in an explicit discussion about the amount of risk in which physicians are expected to place themselves while performing their duties. Upholding a heroic standard in all circumstances is unreasonable and therefore unrealistic. This issue has figured in recent discussions about the level of risk to which physicians should expose themselves during an influenza pandemic.[7,8]

In our analysis of the dilemmas faced by physicians in the military context and of the analogous issues of dual loyalty in civilian life, we found that these questions and dilemmas fall into two main categories: how universal principles of medical ethics are to be implemented in diverse circumstances and how the tensions between professional responsibility to individuals and professional responsibility to society and the common good can be resolved.

The answers to such questions also sort themselves into two categories. The first considers universal principles that are absolute and do not require contextual interpretations; professional responsibility to individuals is always considered to override responsibility to society.[9] The second argues that although there are universal principles and that professional responsibility to individuals should usually prevail over responsibility to society, context is important and situations may arise in which particular decisions favoring the common good over individuals' needs may be morally justified.[10,11]

If valid analogies can be drawn between dual loyalty in the military context and in civilian life, then it should be possible to develop a conceptually clear and consistent approach to the problem of dual loyalty. This could both facilitate our understanding of such problems in all contexts and provide means of resolving conflicts when they arise.

One avenue for clarifying these issues derives from the emerging field of public health ethics. This relatively new subfield of scholarship in bioethics is examining the tension between collective and individual goods and evaluating arguments on how best to strike a balance between these conflicting perspectives. A common theme in public health ethics is the extent to which public good considerations advance state interests over those of individuals. This tension underlies and animates the issue of dual loyalty.

PRINCIPLES OF PUBLIC HEALTH ETHICS

Public health ethics have become a new subfield within bioethics and are receiving considerable scholarly attention.[12–15] Several ethical principles to guide

public health practice have been proposed; these have been used to analyze ethical issues arising at the interface of public health and clinical medicine.[16–19] These principles can be briefly summarized as follows:

- The effectiveness principle requires evidence of the effectiveness of a measure in improving public health if other moral considerations (such as individual rights and freedoms) are to be infringed.[17]
- The proportionality principle requires that a positive balance be achieved between the potential benefits of a public health intervention and the adverse effects of infringing individual human rights.[17]
- The necessity principle requires that no other method of achieving the required goals would have less conflict with other moral considerations.
- The harm principle states that the only justification for restricting the liberty of an individual or group is to prevent harm to others.[19]
- The least restrictive means principle requires that less coercive means (e.g., education, facilitation, and discussion) should first be tried before it is justified to implement the full force of state authority.[14,17,19]
- The reciprocity principle requires the state to provide appropriate assistance to individuals to facilitate their meeting their public responsibility.[19]
- The transparency principle requires the public health decisionmaking process to be as clear and accountable as possible, as well as free of undue or partisan political interference. Thus decisionmaking policies must be undertaken openly and with the widest possible public participation.[19]

A set of critical questions can be posed to assist in the application of these principles:

- Is the action legally mandated?
- Is the action within the agency of the physician alone?
- Aside from physician action, what other actions are required to resolve the issue?
- Are there other means of achieving the objectives of the action that do not require physician involvement?

DUAL LOYALTY IN CIVILIAN LIFE

The extent to which physicians in routine clinical practice have explicit obligations to third parties is greatly underestimated. Many of these obligations are specified in third-party arrangements for mandatory reporting or disclosure of patient information for legal purposes. In such cases, the physician is required to override the physician–patient relationship for broadly social purposes—that is, the justification for such laws rests on unarticulated concerns for common goods.

For example, the College of Physicians and Surgeons of Ontario specifies in a guidebook the following situations that require, without exception, confidentiality to be breached to disclose information required to protect patients or third parties: when a physician suspects child abuse, substandard nursing home care, health card fraud, sexual abuse by health professionals, narcotic use, or preferential treatment of high-ranking persons; when public health or patient safety issues arise in relation to transport safety (driving motor vehicles, piloting airplanes, railroad and sea travel), infectious diseases and immunizations, or community treatment plans; when physicians treat prisoners or patients with gunshot wounds; and when physicians or their patients are involved in termination of employment. The guideline also details three instances when it is permissible to disclose confidential information but not obligatory to do so: imminent danger, incapacity, and disclosure of harm. Similar legally mandated obligations exist in health systems in the United States and Europe, although they are by no means consistent between or within nations, and wide variations exist in their scope and application.

However, a legal obligation, asserted bluntly, arguably may be unethical. Legal necessity and moral legitimacy are not identical. For robust application, moral justifications should be consistent with legal requirements wherever possible as well as serving as a means to contest laws that cannot withstand moral scrutiny. In addition, physicians must navigate many implicit social obligations without specific guidance. In many cases, explicit or tacit third-party obligations conflict with a primary responsibility to patients. We believe that the ethical justification for physician obligations in relation to public health originates from concerns for public health rather than for the individual well-being of patients.

EXPLICIT THIRD-PARTY OBLIGATIONS

Communicable Diseases

The principles of public health ethics come into play when public health is threatened—for example, by the rapid spread of new infectious diseases—to guide decisions about overriding the choices and freedoms of individuals for the common good.[16,17,19]

Physicians often have legally mandated obligations to report cases of serious communicable diseases to public health authorities. Reporting involves identifying personal and clinical information for the purposes of contact tracing and community control of diseases. Although the range of diseases may vary from jurisdiction to jurisdiction, and there is more-compelling justification for reporting some diseases (e.g., smear-positive pulmonary tuberculosis) than others (e.g., childhood varicella), this is a central feature of most modern health care systems.

Divulging identifiable personal and clinical information to public health authorities for communicable disease control without patient consent is perhaps the paradigm case of justifiable subordination of individual rights to social goods. Reporting violates patient privacy, and confidentiality must still be respected. For example, public health officials have the legal authority to collect names (a privacy breach) in an outbreak investigation, but they would not be justified in making such information publicly available. Legal sanction is insufficient to justify such an action without an urgent public purpose. Physician agency alone is probably insufficient to effectively manage the problem because it is unlikely that an individual physician has the time or expertise to carry out all necessary activities involved in contact tracing and epidemic control. Reporting is justified by the harm that will be caused by the spread of communicable disease to those unable to protect themselves from infection, harm that often can only be

prevented by obtaining information from physicians.

Although most individuals are likely unaware of mandatory reporting requirements and of the full spectrum of activities they entail, the transparency principle requires that the justifications for these actions be publicly available and the compelling reasons clearly articulated. In addition, reciprocity holds that individuals should be supported when such reporting adversely affects their ability to enjoy democratically established rights. This may include assistance in ensuring access to health care.

The legitimacy of such disclosures was challenged during the early phase of the HIV/AIDS pandemic. It was part of what Bayer terms AIDS exceptionalism.[20] However, this exceptionalism may have been justified at that time, because some necessary conditions for overriding privacy rights were not met. For example, HIV/AIDS was highly stigmatized and associated with perceived otherness, such as sex-trade work, intravenous drug use, and homosexual activity. Clearly, if reciprocity and respect are not part of the cultural milieu, a case can be made for noncompliance with legally sanctioned actions because foreseeable harms have not been mitigated.

Other situations in which it may be necessary to elevate the common good above individual interests arise when excessive use of antimicrobial therapy[21] or use of antiretroviral treatment (ARV) in patients who cannot fully comply[22] is associated with a high probability of emergence of multidrug resistance, with consequent profound public health implications. Because the multidrug resistance that can result from patients' failure to take their medication regularly has profoundly adverse cost and health implications for individuals and society, it is an ethical imperative among public health practitioners to prevent such an outcome.[21–26]

Selecting patients who are most likely to adhere to ARV treatment for the long term can reduce the possibility of drug resistance. The public health necessity to prevent the emergence of multidrug-resistant HIV may justify overriding individual rights to treatment for those who may not be able to comply with the medication regimen. This ethical position might allow selection of only those patients who are willing to waive confidentiality if there is empirical evidence that requiring candidates for ARV treatment to disclose their status to at least one family member or friend significantly enhances adherence.

The need to ensure a high degree of adherence to treatment for life, and therefore to sustain large and growing ARV treatment programs, poses major challenges to the public health system. In the pre-AIDS era, it was not possible to ensure adherence to six months of tuberculosis treatment in fewer than 100 000 new cases per year in South Africa. So the challenge of ensuring lifelong adherence to ARV treatment for 500 000 people in South Africa, while simultaneously treating escalating numbers of people with tuberculosis, is formidable.[27]

Compassionate health care workers will wish to treat every patient, even those who are close to death or who may not be able to adhere to treatment long term and will probably derive little benefit. Placing the good of society ahead of the good of specific individuals is painful for health care staff, but the greater social good should not be ignored. Public health practices, like personal medical care, should be supported by justifiable principles of public health ethics and by due process in their application to ensure consistency and accountability in practice.

Child and Elder Abuse

In many jurisdictions, physicians are obliged to report observed or suspected mistreatment of vulnerable persons. This is justified by the harm principle and the necessity principle, which recognize that physician agency alone is insufficient to mitigate the harm. Although such reports may result in the use of state powers to remove the affected individual from exposure to ongoing harm, some argue that voluntary measures are inappropriate or ineffective. In these circumstances, physicians must play a surveillance role and operate as a means of social control of behavior that is not condoned by the state and society. They are by extension acting as agents of the state.

In this case, though, physicians are not alone in their reporting obligations: other responsible parties, such as teachers, have similar obligations under the law. The physicians' role is unique in that affected persons come to their attention through the need for medical treatment for physical and psychological illnesses and injuries.

Assessments of Social Fitness

In many jurisdictions, physicians are obliged to report information pertaining to the fitness of their patients to operate motor vehicles and other transportation vehicles, such as airplanes, ships, and trains, or to provide essential services, such as air traffic control and medical services.

In all these cases of third-party obligations in civilian life, harm is the animating principle. Arguably, though, the state could establish processes that would not require physicians to be the agents of surveillance and reporting. Currently, physician reporting is used to identify unsafe drivers with adverse health conditions. A simple alternative would be road testing of everyone 75 years and older. Then ministries of transport (or other similar government agencies) would be the agents responsible for monitoring road safety. Whether this would be bad or good is a matter for society to decide; the current system certainly places third-party considerations between physicians and patients and thus is problematic. It relates to the harm principle in the straightforward sense that the purpose of identifying risky drivers is to keep the roads safe. It is not a generally understood obligation of physicians to ensure road safety, however.

TACIT THIRD-PARTY OBLIGATIONS

It is generally accepted that the ethical obligations between physician and patient exist solely within an interpersonal relationship. However, because such relationships arise within socially constructed systems of health care, institutional forces also influence and shape the relationship. Thompson's explication of how institutional vices can corrupt those who work within systems[28] and Bakan's descriptions of how corporations can adversely affect the moral behavior of their employees[29] illustrate the extent to which social forces shape interpersonal relationships and

influence accountability in medicine and many other walks of life.

Resource Allocation

The most relevant ethical principle guiding governance of medical practice in the institutional setting is justice or fairness in access to health care. When resources are limited and priorities need to be set to achieve the highest social utility in health, justice may set constraints to the limits of medical care that can be provided by a physician for any individual patient. Such decisions are often made tacitly and without guidance by individual physicians at the bedside; these are third-party obligations executed on an ad hoc and inconsistent basis. Rather than demand that individual clinicians make such decisions on their own—sometimes arbitrarily—society should provide a well-formulated policy they can consult and follow.

Although the necessity of rationing or priority setting is not universally recognized, such measures cannot be avoided in the face of both limited resources and seemingly unlimited demands for medical care. Well-reasoned arguments have been offered for allowing overall health benefits to society to influence priorities in the use of scarce resources. Given that there is no single substantive theory of distributive justice that enjoys unanimous appeal, the promotion of justice and avoidance of arbitrariness in priority setting requires, at the least, procedural justice in the formulation of priority allocations.

Four requirements have been proposed: transparency in decisionmaking; relevance of the decisions to the circumstances, as judged by fair-minded persons; an appeal mechanism that allows for decisions to be changed in the face of new evidence; and the ability to enforce these processes.[30] Institutions that adhere to these requirements can set legitimate and publicly accountable policy frameworks within which individual clinicians must operate. The advantage of such policies is that decisions become more uniform and less subject to individual physician bias or opinion.[31]

A Seemingly Intractable Controversy

Balancing the needs and rights of individuals with the imperatives of public health requires a shift in mind-set away from strong individualism and toward respect for individuals within the context of duty toward the community, as well as insight into how individual health and community health are mutually determined. In the face of serious public health threats, individual choices can be overruled on substantive grounds and through appropriate procedures. However, every measure must be taken to ensure that coercive state powers do not overstep the limits of legitimate action in the name of the public good, which should be ensured by adhering to the principles of public health ethics. In addition, human rights doctrine is illuminating. For example, the nonderogable rights delineated in the Siracusa principles, drawn up in 1984 by 31 global experts in international law, set de minimis expectations of how human beings may be treated, in essence defining the lower limit of human integrity.[32] These principles outline the limitation and derogation provisions in the International Covenant on Civil and Political Rights, which are intended to prevail even in contexts such as civil war and public health emergencies that threaten the life of the state.

The Siracusa principles detail the specific conditions that must be met to justify the implementation and enforcement of restrictive measures during public health emergencies: the restrictions on rights must be prescribed by law, their application must be nondiscriminatory, they must relate to a compelling public interest, they must be necessary to achieve the compelling public interest, and they must be the least restrictive measures possible that will achieve the public interest. In addition to imposing conditions that apply to the limitation and derogation of civil and political rights, the Siracusa principles designate nonderogable rights. Absolutely no circumstances, including an emergency that threatens the life of the state, justify violating the right to life or the right not to be subjected to torture or to cruel, inhuman, or degrading treatment. The Siracusa principles are explicit that any limitation on these rights would be an egregious human rights violation.

Dilemmas that arise to challenge public health ethics will be greatest for societies that are intolerant of any infringement of individual liberties in the service of the common good. The challenge for societies that give more weight to the common good is to avoid excessive infringements of individual rights in the pursuit of public health goals. A middle path is required to achieve an optimal balance between competing goods.

DUAL LOYALTY IN THE MILITARY CONTEXT

Physicians in their routine clinical practice clearly face multiple situations in which they are obliged to place social goods above individual patient concerns. It is therefore not a great intellectual leap, at least for some, to accept that although physicians have the same high degree of medical and ethical responsibility to all for whom they provide care in the military context—friend or foe—it may be legitimate under rare (and explicitly justified) circumstances for physicians to place their responsibilities to the public or military interest above the interests of individual patients. Much work is needed to identify, define, and justify which circumstances might allow public or military interests to override individual rights.

The cases discussed by Zupan et al.[5] and Gross[3] provide insights that may be useful in deliberations about military good, for example, when the abrogation of well-established rights such as privacy safeguards is advocated. For example, a prisoner of war might disclose to a treating physician information vital to national security (such as plans for an attack or the site of a bomb). Such a situation could be seen as placing a physician in a position similar to having knowledge of a communicable disease diagnosis (for example, extensively drug-resistant tuberculosis) or finding evidence of child or elder abuse (where the patient may ask the physician not to report family members), which meets the criteria for derogating privacy safeguards between a patient and physician. It should, however, be noted that this "ticking bomb" example is probably highly overplayed, and empirical evidence supporting the frequency with which this has occurred and the magnitude of the risk truly averted should be evaluated to determine whether torture may be even remotely considered to be vital to saving the lives of many people.[33]

In the case of the dialysis patient described by Zupan et al., the treating nephrologist might inform the chain of command of issues arising from clinical care without violating the duty to act in the patient's best interests. For example, he could report to his superiors that the patient is refusing dialysis to be unavailable for interrogation without compromising his ability to provide ongoing care. Further analyses of these kinds of cases are needed, but the reasoning might parallel that used in similar situations that arise in civilian life.

Regardless of the ethical principles and scholarship that may be applied in individual countries or health systems, there is a great need for international humanitarian law, which serves both to protect vulnerable prisoners and to shield health professionals who treat prisoners with respect and dignity from abuse or penalty. Such laws should be reaffirmed, and the rare occasions on which the rights of individuals can be overridden should require justification by appeal to principles. Moreover, these exceptions should not extend to torture—a requirement that calls for both a clear definition of what constitutes torture[34–37] and recognition of the dangers of making exceptions to international legal and ethical principles that prohibit torture as spelled out in detail elsewhere.[33]

The American Psychological Association and the American Psychiatric Association have similarly condemned torture. The American Psychological Association resolved in 2007 that it

> unequivocally condemns torture and cruel, inhuman, or degrading treatment or punishment, under any and all conditions, including detention and interrogations of both lawful and unlawful enemy combatants as defined by the US Military Commissions Act of 2006

and further proscribed any involvement of psychologists "knowingly planning, designing, and assisting in the use of torture and any form of cruel, inhuman or degrading treatment or punishment."[38]

Utilitarian Calculations

Rubenstein, in his response to Gross, acknowledges that there may indeed be rare circumstances during war that require patients' interests to be subordinated to public interest or reasons of state.[4] Significantly, Rubenstein is a spokesman for Physicians for Human Rights, an organization that is unequivocally committed to protecting human rights.[38] Indeed, there is some historical precedence for this. For example, the 1939 and 1945 versions of the Canadian Medical Association Code of Ethics had the following wording in the section titled "Of the Duties and Responsibilities of the Profession to the Public": "Every physician, whatever his special training, should be officially or unofficially a servant of the state for the betterment of health."[39]

However, Rubinstein fears, with considerable justification, that Gross goes too far in advocating for dominance of utilitarian calculations and state interests in the war context. For example, in his recent full-length book, Gross states,

> Soldiers are entitled to medical care subject to their salvage value, enemy combatants receive care only insofar as they are nonthreatening, and civilians, including soldiers who cannot return to duty, warrant scarce medical resources subject to the dictates of military necessity and general welfare.[40(p177)]

In our view, resource allocation decisions in the military context should be governed by the same principles that apply in civilian life. This could ensure a degree of uniformity and accountability that is more legitimate than decisions by powerful individuals.

In his book, Gross also states, "Triage means nothing but sorting or culling."[40(p37)] Although it is true that triage is a process of sorting and declining to devote vast resources to those whose lives cannot be saved, his use of the word *culling* is entirely inappropriate and reflects a callousness that we hope is not manifested when doctors are forced to deflect their attention from one person to another in the interest of allocating scarce resources. Whenever aggressive treatment is withheld, for any reason, at least some medical care should be directed to providing a measure of comfort and support that will allow people to die without feeling abandoned. Gross's characterization of triage does not do justice to the ethics and practice of medicine.

The Need for an Ethics Tribunal

These thoroughly utilitarian views from a military perspective are not accepted by all (and certainly not by many physicians). Rubenstein delineates the problems that impair ad hoc individual ethics decisions: (1) the absence of comprehensive data on outcomes that could guide utilitarian calculations, (2) the complexity of ethical dilemmas in war and other military contexts, and (3) the need to avoid injustice and the cavalier attitudes that may be pervasive in military contexts and contribute to erosion of professional standards. He therefore proposes that a military medical ethics unit should adjudicate such decisions. This proposal derives from the idea that deliberation and moral reasoning should inform decisions about dilemmas that may not have a single correct answer that is deducible from codes or rules.

Such deliberations could be guided by the same principles of public health ethics that justify civilian physician action in the interest of collective good. These principles provide a better framework than the purely utilitarian calculations recommended by Gross, which are susceptible to many errors. They also require those who would require physicians to elevate a common good or military objective above duty to patients to make a positive case based on good evidence.[32]

Many scholars support the counterargument that even when a physician comes to believe (rightly or wrongly) in a detainee's complicity or guilt in actual, inchoate, or prospective crimes against the physician's country, and the physician does not desire to protect the interests of a detainee because of the enemy government's policies, the physician's core duty to care for the detainee patient must still prevail.[41,42]

We agree with Rubenstein that physicians should not be required to make decisions to place military need above their duties to patients. We also support his recommendation that an independent medical ethics tribunal should be appointed to evaluate such situations and make decisions that they can justify. Moreover, we suggest that such an independent medical ethics tribunal would need to be formally structured and be accountable in writing for its decisions. Although the need for an independent tribunal may be contested by governments and the military, we think it is incumbent on the health

professions to advocate for this type of oversight.

Such a tribunal, or ethics unit, should be totally independent and in no way subservient to the military. The persons who sit on this tribunal should come from the judiciary, academia, religious-based communities, and medicine. It should also be protected by formal legal mechanisms from any intimidation or punitive action by the military or the state. Its deliberations should be informed by, among other relevant considerations, the principles of public health ethics. In addition, in weighing social or military utility against individual patient needs and rights, the tribunal should adapt Daniels and Sabin's process of "accountability for reasonableness" for setting priorities in the context of limited resources.[30] It would thus have to meet the same procedural requirements of transparency, relevance, appeals, and enforceability that are employed in civilian life.

CONCLUSIONS

Some tension will always exist between universal principles and their application in particular contexts. Similarly, there will always be some conflict between the ethics of individual relationships and those involved in protecting public or population health. We can deal with such tensions in 2 ways. One way is to insist on the absoluteness of ethical principles, with no latitude in how these are applied contextually, and on the priority of the individual over society at all costs.

Alternatively, we can agree that moral reasoning is required in the application of universal principles and that although the priority of individuals is necessary, it is not always a sufficient ethical guide when the common military good or common good is seriously threatened. The challenge is to identify substantive arguments and procedural means that could assist in finding rational ethical solutions to challenges to human life and security.

Clearly, dual loyalty is a pervasive aspect of medical practice. In civilian life, physicians have a wide range of explicit and tacit third-party obligations that justifiably warrant subordination of patient interests. These responsibilities are often less critical, but they do not differ in kind from the conflicts between obligations that may arise in the military context. None of the arguments made here should be seen to detract from the necessity of promoting high medical and ethical standards for health care professionals in times of war and when public health is threatened. However, such standards cannot be achieved merely by promulgating rules, codes, or national or international laws. Such formal guidelines are indeed important and necessary, but they are not sufficient, and an independent ethics body could do much to promote rational moral deliberation on complex ethical dilemmas and to facilitate responsible processes for making complex decisions in the military context. ■

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Heritage of Army Audiology and the Road Ahead: The Army Hearing Program

Noise-induced hearing loss has been documented as early as the 16th century, when a French surgeon, Ambroise Paré, wrote of the treatment of injuries sustained by firearms and described acoustic trauma in great detail. Even so, the protection of hearing would not be addressed for three more centuries, when the jet engine was invented and resulted in a long overdue whirlwind of policy development addressing the prevention of hearing loss.

We present a synopsis of hearing loss prevention in the US Army and describe the current Army Hearing Program, which aims to prevent noise-induced hearing loss in soldiers and to ensure their maximum combat effectiveness. (*Am J Public Health.* 2008;98:2167–2172. doi:10.2105/AJPH.2007.128504)

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MILITARY CONFLICTS HAVE long been identified as a source of physical disability. Veterans' benefits were first documented in this country in 1636, when money was provided to individuals disabled in the Plymouth colony's defense.[1] Even before World War I, military veterans were receiving compensation for hearing loss. The medical records of Union Army soldiers document that 33% had diagnosed hearing loss.[2] Soldiers with disabilities from their military service were guaranteed a larger pension as compensation. Even though the method of measuring an individual's hearing acuity in the late 1800s is questionable by today's standards, hearing loss was recognized by the government as a disability. The General Law of 1862 and the Disability Act of 1890 were two major legislative movements that made this possible.[3]

Figure 1 delineates four distinct periods in the development of hearing loss prevention. There are specific developmental milestones in each period. These policies were the first of many seminal events that would influence the evolution of a program known as the Army Hearing Program; however, the road ahead would be full of challenges.

CHANGING ATTITUDES

In the period from the American Civil War to World War I, new occupational hazards evolved. One of the most prevalent of these was hazardous noise. The pervasive attitude of the early 1900s was that hearing loss could be prevented by developing a tolerance to noise. Consequently, any attempts to avoid loud sounds or to protect oneself from them were interpreted as weakness.[4] This "tolerance" theory was scientifically examined in 1941 when the US Army opened the Armored Medical Research Laboratory at Fort Knox, Kentucky. This laboratory completed a landmark study in 1944 resulting in the recommendation that gun crews, gunnery instructors, and others regularly exposed to gunfire blasts be provided hearing-protective devices. The hearing protector of choice was the V-51R, single-flange earplug.[5] Although hearing protection was now being considered, it still was not deemed a requirement.

Even though hearing conservation programs did not exist at the end of World War II, the army and navy surgeons general placed great emphasis on aural rehabilitation for veterans returning to their civilian lives. With the medical and administrative infrastructure not prepared to deal with the large numbers of veterans returning from war, Congress passed the Soldiers Readjustment Act of 1944 that made services more